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SEATTLE FIRE DEPARTMENT
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Smoke Alarms—What You Should Know

Do the smoke alarms in your home work? How about those of your family, friends, and neighbors? You may think they do. But according to a recent study by the National Fire Protection Association, the smoke alarms didn't work in three out of every ten smoke alarm-equipped homes that had fires. That's a frightening statistic. Especially when you consider the fact that 80 percent of all U.S. fire deaths occur in the home.

What's the difference between a smoke alarm and a smoke detector?
Absolutely nothing. The popular name for smoke detection devices in the U.S. has been "smoke detector." However, in 1996, U.S. manufacturers officially began using the name "smoke alarm" to be consistent with international terminology. This is also a more accurate name since the devices not only detect smoke but, more importantly, "alarm"' you that there is smoke present and give you time to escape.

Why do I need smoke alarms in my home?
Fire is the third leading cause of accidental death in the home. The risk of dying in a fire is twice as high in a home without a smoke alarm as in one with a smoke alarm. Most people who die in fires are not in the room where the fire starts. This is because the smoke created by a fire spreads from the fire to all areas of your home. Even a small fire can fill your home up with deadly smoke. Three-fourths of all fire-related deaths are from smoke inhalation, caused by the toxic gases produced as a fire develops and spreads.

Most fire fatalities occur between 2 a.m. and 6 a.m. when most people are sleeping. Contrary to popular belief, the smell of smoke may not wake a sleeping person. Instead, the poisonous gases and smoke produced by a fire can numb the senses and put one into a deeper sleep. The only thing standing between the deadly fumes of a fire and a safe escape is the piercing sound of a smoke alarm. Smoke alarms are one of the best and cheapest safety features you can buy and install to protect yourself, your family and your home. Working smoke alarms let you know there is a fire in the home and give you time to escape.

Where do I buy smoke alarms? Are they expensive?
Most hardware, home supply, or general merchandise stores carry smoke alarms. If you are unsure of where to buy smoke alarms in your area, call your local fire department on a non-emergency line.

A battery-powered smoke alarm can cost less than $10, while an alarm that can be hooked into your electrical system costs about $16. A smoke alarm with extra features can cost around $25. Batteries cost $1 to $2. If you can't afford the smoke alarms you need, you live in the City of Seattle, and you own your own home, the Seattle Fire Department can help. Our free smoke alarm program has provided and installed hundreds of smoke alarms for City residents. If you need smoke alarms and think you might qualify, call the Seattle Fire Department at 386-1337.

I went to the store and saw different kinds of smoke alarms. What do I need?
The type of smoke alarm is less important than

the number of smoke alarms you have in your home. Smoke alarms that are spaced farther apart may be farther from a fire, which means it will take longer for smoke particles to reach the alarm and set it off. And that gives the fire more time to grow.

There are two basic kinds of smoke alarms: ionization and photoelectric. Both are effective at detecting fires, although they do it in different ways. An ionization alarm monitors "ions" or electrically-charged particles in the air. The ionization alarm responds faster to small smoke particles. Flaming fires produce more small smoke particles. Because the ionization alarm is more sensitive to small smoke particles, it will respond more quickly to the fumes and gases produced from cooking which could cause nuisance alarms if a smoke alarm of this type is installed near the kitchen A photoelectric alarm uses a beam of light and a light sensor. It responds more quickly to larger smoke particles. Smoldering fires produce more large smoke particles.

You can also purchase combination ionization/photoelectric smoke alarms. When the two sensors are combined in one unit, the ionization sensor is set at a slightly less sensitive level. This makes the unit less prone to nuisance alarms and you get a unit that is more responsive to both flaming and smoldering fires.

Some smoke alarms have additional features. These can include:
❑ An Escape Light which is a small light that comes on when the alarm sounds.
❑ A Light Test Feature which allows you to test your smoke alarms by shining a flashlight at the alarm. With this feature, you don't have to climb on a chair or ladder to press the test button.
❑ A Silencing or "Hush" Button which lets you silence the alarm while you get rid of whatever is causing the alarm to sound (example - burnt toast) and clear the air.

Read the manufacturer's instructions for the exact period of time the alarm is silenced. Of course, before using the "hush" button, make sure a real fire emergency does not exist.

Another difference in smoke alarms is how they are powered. They can either be hooked into your home's electrical system (as is required in many new homes) or they can be battery-powered. Some of the alarms hooked into a home's electrical system (hard-wired) come with a battery back-up in case your electrical power goes out.

Also available are smoke alarms with 10-year batteries. These alarms eliminate the need to change the batteries every year. Make sure that whichever smoke alarm you buy has an FM- or UL-approved label.

How many smoke alarms do I need? Where should I put them?
The more smoke alarms you have, the better your chances of surviving a fire. The closer the smoke alarm is to a fire, the more quickly it will go off, warning you and your family that there is a fire in the home. When deciding how many smoke alarms to put in your home, don't skimp. At $10 to $25 per alarm, one or two extra alarms is not going to put a huge dent in your household budget. And they could save you thousands in property damage. Or save your life.

For placement of your smoke alarms, national codes and regulations recommend the following:
❑ At least one smoke alarm should be installed on every level of the home, including the basement.
❑ There should be a smoke alarm in the main hallway outside of each bedroom area, close enough to be heard through a closed bedroom door.
❑ Install a smoke alarm inside each bedroom.

❑ On floors without bedrooms, smoke alarms should be in or near living areas such as family rooms, living rooms and dens. This is especially important if someone in your home smokes. Fires caused by smoking materials like cigarettes are the leading cause of fire-related death, accounting for 23 percent of all fatalities.

❑ A smoke alarm should be installed above stairwells.

❑ Mount basement alarms at the bottom of the basement stairwell. This will allow smoke to be detected at the base of the stairs before it blocks the use of the stair for escape from the basement, or before the fire spreads up the stairs to the main floor.

❑ Put a smoke alarm near your kitchen. Cooking-related incidents are the leading cause of residential fires and fire-related injuries. Consider using a smoke alarm with a "hush" feature for smoke alarms located near your kitchen.

Is there any place I shouldn't put a smoke alarm?
Smoke alarms are not made to work in extreme heat or cold. They aren't recommended for attics and similar spaces that aren't heated in the winter or cooled in the summer. This also applies to garages. In addition to the heat and cold in garages, the smoke from engine exhaust fumes will cause nuisance alarms and clog the smoke alarm. Also, don't mount your smoke alarms near drafts created by fans, air ducts, windows, doors, or fireplaces. The moving air can blow smoke away from the sensor.

Don't mount your smoke alarm too near the stove or bathroom shower. Smoke from cooking food or steam from the shower may result in frequent nuisance alarms. Consider using a smoke alarm with a "hush" feature for smoke alarms located near these areas.

Are smoke alarms difficult to install?
Not a bit. In most cases, all you'll need is a screwdriver. Most manufacturers provide drawings with the installation instructions that show you where to locate the smoke alarms, and how to mount them.

The best place to mount your smoke alarms is on the ceiling, but make sure it is at least 4 inches away from the nearest wall.
If mounting the smoke alarms on the ceiling is not possible, mount the alarm high on the wall, at least three feet away from a corner. When mounted on a wall, the smoke alarm should be no closer to the ceiling than 4 inches and no farther from the ceiling than 12 inches. A smoke alarm mounted too close to the ceiling or too far down the wall will not be as effective at sensing smoke. This is because a small "dead air" space is created where the wall and ceiling meet and smoke may not reach the smoke alarm to sound an alarm.

In rooms where the ceiling has an extremely high point, such as in vaulted ceilings, it is recommended that you mount the alarm near the ceiling's highest point. If your alarm plugs into a wall socket, make sure it has a restraining device to keep its plug from being pulled out.

How do I make sure my smoke alarms are working?
Over one-third of fire deaths occur in homes that have smoke alarms but the alarms were not maintained properly and didn't work. According to the National Fire Protection Association, there are now more homes with smoke alarms that don't work than homes without smoke alarms at all. These non-working smoke alarms create a false sense of security.

Three of the most common reason for non-working smoke alarms are:
❑ Batteries have been removed.
❑ They've been disabled to prevent nuisance alarms.
❑ They are more than 10 years old and don't work anymore.

Experts estimate that one in three homes has at least one smoke alarm that doesn't work. And a national study found that smoke alarms, when they fail, tend to fail totally as opposed to just becoming less sensitive. Regular testing will help you find these alarms that don't work. Test your smoke alarm as frequently as the manufacturer recommends but not less than once a month. Use the test method the manufacturer recommends.

The usual method is to push the "Test" button for five seconds or so. The smoke alarm should sound. Testing is required for both battery-powered alarms and those alarms hard-wired into your electrical system. Never use an open flame from a match or lighter to test your smoke alarm. Never use burning objects to create smoke. You could set your smoke alarm, and your house, on fire.

What should I do if I test a smoke alarm and it doesn't work?
Always follow the manufacturer's instructions. Manufacturers may recommend that you check the smoke alarm's power source (battery and/or wiring) to make sure the smoke alarm has power. Some smoke alarms have a small light (LED) that should blink about every minute or so, indicating the unit has power. Some units will have a light (LED) that stays lit all the time, indicating there is power. The manufacturer's instructions for your smoke alarm should tell you how to determine if the unit has power. If needed, replace the battery. If your smoke alarm is powered by household power (i.e., it is hard-wired) you may need the assistance of a licensed electrician.

After checking the power supply, test the alarm again. If the smoke alarm still does not work, replace the unit immediately. If the smoke alarm is still under warranty, follow the manufacturer's warranty instructions for replacement. Important: Always test a newly installed smoke alarm.

How do I take care of my smoke alarms?
Smoke alarms are pretty easy to maintain. Unfortunately, improper maintenance is a big reason smoke alarms fail. According to a study by the Consumer Product Safety Commission, 90 percent of U.S. households have smoke alarms. However, the smoke alarms in 20 percent of these households - about 16 million - weren't working. And in half of those households, the residents thought the smoke alarms were working. Again, non-working smoke alarms create a false sense of security that can lead to tragedy.

Maintenance of your smoke alarms is critical. Smoke alarms can save lives but they won't work if they aren't maintained. Replace the batteries at least once a year, or according to the manufacturer's instructions. Always use fresh batteries. Never remove the battery unless replacing it. Common batteries should last approximately one year. Pick a holiday or birthday and replace the batteries each year on that day. Many people change their batteries when they change their clocks for daylight savings time in the fall. That way they can remember to "Change The Clock/Change the Battery".

If your battery-powered smoke alarm starts to "beep" or "chirp" every minute or so this usually indicates a weak battery. Replace the battery immediately with a fresh one and reset the alarm. If it continues to chirp, clean the unit. If the unit continues to chirp, replace it with a new smoke alarm.

Smoke alarms hooked into your electrical system need to be maintained just like the battery- powered kind. If they contain a battery for back-up purposes, the batteries need to be changed at least once a year, or according to manufacturer's instructions.

Smoke alarms with 10-year batteries may be sealed to prevent the replacement of the battery (since the operational life of most smoke

alarms is about ten years). At the end of 10 years, the entire unit must be replaced.

Dust and cobwebs can interfere with the operation of your smoke alarm. Follow the manufacturer's instructions for cleaning. At a minimum, gently vacuum the alarm with a vacuum cleaner attachment twice a year. If you move into a new home, replace the batteries in the smoke alarms immediately. Test all the smoke alarms and replace any units that fail to test properly. If the smoke alarms appear old, you may want to replace them.

When should I replace my smoke alarms?
Smoke alarms are like any other sensitive electronic device - they have a limited service life, after which they become increasingly prone to failures. Since smoke alarms are made to protect lives, they should be replaced as recommended by the smoke alarm manufacturer.

Typically, you need to replace your smoke alarms every eight to ten years which isn't bad considering the low cost of smoke alarms. You may want to write the purchase date on inside of the alarm. That way, you'll know when to replace it.

This goes for all smoke alarms including battery-powered alarms, hard-wired alarms, and alarms with 10-year batteries. Twenty-four hours a day, your smoke alarms are checking the air for smoke and they wear out. Also, if one of your smoke alarms gets wet, dirty, gets paint on it, or is otherwise contaminated, replace it with a new one.

One of my smoke alarms is always going off and it's a real pain. What should I do?
First, don't disable it. Follow the manufacturer's instructions and clean the alarm. If that doesn't help, install fresh batteries. Is the smoke alarm old? Some alarms become more sensitive with age and will respond more quickly to humidity, cigarette

smoke, cooking vapors, etc. If you think that's the case, replace the alarm.

If you don't think the age of the alarm is the problem, check the location. A smoke alarm installed too close to an oven or shower could result in frequent nuisance alarms. As a matter of fact, the National Fire Protection Association recommends that smoke alarms installed within 20 feet of cooking apparatus either be photoelectric (and less likely to respond to the smoke from cooking) or have a silencing or "hush" button. You could replace the alarm that's causing the problem with a combination ionization/photoelectric smoke alarm. When the two sensors are combined in one unit, the ionization sensor is set at a slightly less sensitive level. So the unit is less likely to respond to the smoke from cooking.

Finally...
Remember these simple facts:
❑ Total time to buy and install the appropriate number of smoke alarms for your home: Less than two hours
❑ Total time to maintain your smoke alarms over one year: One hour
❑ Total cost: Less than $100
❑ Total savings: Quite possibly, a life.